Cognition and Psychopathology

Anxiety

What is Anxiety?

• a preparatory, anticipatory affective state, involving:
  - apprehension
  - tension
  - uneasiness from anticipation of danger
Anxiety (and its closely related affect, fear) are part of non-pathological emotional experience

- can serve (among other things) to increase physiological arousal so as to deal better with anticipated danger or threat.

In anxiety disorders, the anxiety experienced is out of proportion to the possible objective threat.

Alternatively (in most cognitive formulations), the level of danger is overestimated.

Psychometric vs. Classificatory Approaches

Many psychological studies of anxiety treat it as a continuous measure, shading from normal to pathological levels. This view has been termed the psychometric approach.

- This view justifies use of subclinical levels of anxiety to draw inferences about clinical conditions
  - analogue studies
By contrast, psychiatric approaches to anxiety, and nosological categorization, have generally used a classificatory approach:

- pathologies involving anxiety are distinctly separate from normal, subclinical anxiousness

This distinction between psychometric and classificatory approaches can also be seen in depression, and in many other psychopathologies (cf. milder “personality disorder” forms of pathologies, e.g., “obsessive compulsive personality disorder”, “schizotypal personality disorder”)

State vs. Trait

We can talk of anxiety as:

- a brief experience, or affective state

- a propensity to respond anxiously to certain situations, or a trait

Although individuals who have an anxiety disorder may experience only brief and intermittent periods of extremely high state anxiety, nonetheless they are said to possess high trait anxiety.
There is some terminological/conceptual confusion as to whether individuals who have recovered from an anxiety disorder should be labelled as high trait anxiety.

("Trait" is often used in personality literature to indicate enduring, stable aspect of personality. Does treatment change an otherwise stable feature, or merely mask it or make it latent?)

In most research we will look at, trait anxiety (i.e., present illness) is sufficient to produce differences between pathological groups and controls (i.e., not necessary to provoke anxiety through threat to find differences).

(Contrast with depression: In anxiety, it is not necessary for the dysfunctional affect aspect of the disorder to be active in order to produce cognitive distortions.)
Diagnostic/clinical/epidemiological characteristics of specific anxiety disorders

There are a wide variety of psychopathologies that have, as a primary component, severe anxiety. The DSM-IV lists the following (among others):

Specific Phobia

Specific (or simple) phobia involves clinically significant anxiety provoked by exposure to a specific feared object or situation, often leading to avoidance behaviours.

- E.g., spiders (arachnophobia), snakes, flying, heights (acrophobia), needles, closed-in spaces (claustrophobia)
Focus of the fear may involve anticipated harm from the object or situation (e.g., a person may fear dogs because of concerns about being bitten), or from concerns about losing control, panicking, and/or fainting that might occur in the presences of the object or situation (e.g., people who are claustrophobic may worry about losing control and screaming).

Diagnosis is made in part on level of impairment, and this can be situationally determined.

"A person who is afraid of snakes to the point of expressing intense fear in the presence of snakes would not receive a diagnosis of Specific Phobia if he or she lives in an area devoid of snakes, is not restricted in activities by the fear of snakes, and is not distressed about having a fear of snakes." – DSM-IV
Phobias may be further broken down into subtypes:

- Animal (e.g., insects, cats)
- Natural Environment (e.g., storms, heights)
- Blood-Injection-Injury
- Situational (e.g., bridges, elevators, flying)
- Other

_Blood-Injection-Injury_ phobias tend to have a somewhat different profile from other phobias:

whereas most phobias involve increase in heart rate and blood pressure with threat, this subtype associated with deceleration in heart rate and blood pressure, resulting in vasovagal fainting in approximately 75% of such individuals.
**Social Phobia (SP)**

Social Phobia is characterized by clinically significant anxiety provoked by exposure to certain types of social or performance situations, based on fear of social embarrassment, often leading to avoidance behaviour.

Subclinical anxiety related to public performance is extremely common (e.g., fear of public speaking).

In some instances exposure to provoking situation may produce panic attack.

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**Agoraphobia**

Agoraphobia is anxiety about, or avoidance of, places or situations from which escape might be difficult or embarrassing or in which help might not be available in the event of a panic attack or panic-like symptoms.
Panic Disorder (PD)

PD is characterized by recurrent unexpected panic attacks about which there is persistent concern.

A panic attack involves a discrete period of intense fear or discomfort, in which four or more of the following symptoms develop abruptly and reach their peak in ten minutes:

- palpitations
- sweating
- trembling or shaking
- shortness of breath
- feelings of choking
- chest pain or discomfort
- nausea
- dizziness
- feelings of unreality
- fear of losing control
- fear of dying
- numbness
- chills or hot flashes
Panic attacks can also accompany other anxiety disorders, such as agoraphobia and social phobia.

Posttraumatic Stress Disorder (PTSD)

PTSD involves the reexperiencing of an extremely traumatic event (through intrusive recollections, dreams, or, in extreme cases, dissociative states) accompanied by symptoms of increased arousal and by avoidance of stimuli associated with the trauma.
Diminished responsiveness to external world ("psychic numbing", "emotional anesthesia") often begins soon after the precipitating event.

PTSD produces increased arousal, possibly resulting in hypervigilance and exaggerated startle response.

Generalized Anxiety Disorder (GAD)

GAD involves at least 6 months of persistent and excessive anxiety and worry about a large body of issues, not confined to one of the areas otherwise covered by other anxiety disorders.
Obsessive-Compulsive Disorder (OCD)

OCD is characterized by obsessions (which cause marked anxiety or distress) and/or by compulsions (which serve to neutralize anxiety).

**Obsessions** are persistent, intrusive thoughts, ideas or images. They are thought of as inappropriate by the individual, and not within their control, although they recognize they are the source of them (cf. psychosis).

Common obsessions include contamination, repeated doubts, concerns for order or symmetry, aggressive or horrific impulses, or sexual imagery.

**Compulsions** are repetitive behaviours or mental acts whose goal is to reduce anxiety or distress (usually performed to address an obsession, e.g., handwashing for contamination fears).
Cognitive Theories of Anxiety

See also Dombeck & Ingram chapter in Dobson & Kendall

- they cover additional theories in chapter
- yes, these are fair game for the exam

Schema Theory (Beck)

For Beck, cognitive appraisal processes are most responsible for pathological anxiety

- Anxiety exaggerated in pathology through biases in way information is appraised for danger
  - appraisal is automatic process
  - anxiety determined by interpretation, not objective level of danger
Sensory information is interpreted by schemata

Schemata involved in anxiety processes reflect themes of danger or harm to individual

Two automatic, concurrent processes of appraisal for info:

- **Primary appraisal process**
  - determines whether incoming information represents acute danger
  - based on immediate, therefore potentially incomplete or erroneous, information

- **Secondary appraisal process**
  - assessment of resources to deal with potential threat
    - physical, psychological, social resources
In pathology, schemata are biased to enhance processing of information perceived as threatening.

- Hypervigilance for threat
- Devaluation of information suggesting safety

In addition, re-appraisal processes in pathology are impaired:

- For non-anxious individuals, threatening situations continually re-appraised as new information is available
  - Allows erroneous appraisals of danger level to be corrected
• In pathology, this re-appraisal does not occur
  ▸ perception of danger not updated
    - based on initial primary appraisal (may be incomplete and/or faulty)
  ▸ schemata not changed with new information

Self-Discrepancy  *(Higgins)*

• Primarily addresses non-physical threats
  ▸ social
  ▸ personal standards *(guilt)*
Key notion: appraisal of current and desired cognitive states

- Primary focus of theory: how discrepancy produces anxious affect

Two classes of processes used to evaluate the self:

- Standpoints
  - points of view from which individual can be judged
    - self
    - others
• Domains

- Three ways individual represent themselves and others (domains) based on standpoint:
  - *Actual*: qualities judged manifested currently
  - *Ideal*: qualities the judging standpoint desires the individual to embody
  - *Ought*: qualities the judging standpoint holds responsible for acquiring

Failure to meet Ought expectations (discrepancy between Ought and Actual) generates anxiety

Nature of anxiety depends on standpoint used”

• From “other” standpoint, discrepancy generates fear of punishment

  - apprehension, threat, fear
• From “self” standpoint, discrepancy from violating own standards
  ‣ guilt, self-contempt, unease

• E.g., perform poorly at work:
  ‣ Discrepancy between your behaviour and your sense of employer’s expectations of your behaviour
  ‣ anxiety, fea

• E.g., thoughtlessly insult a friend
  ‣ Discrepancy between your behaviour and what you expect of yourself
  ‣ guilt
Empirical work

Cognitive biases

To what degree is cognitive processing biased toward the target of anxious concern (threat)?

Generally speaking, the late 1980s and 1990s have produced a burgeoning literature that supports the existence of cognitive biases in anxiety disorders.

In brief:

- there is a consistent relationship between clinical anxiety and facilitated processing of affect-congruent (threatening) information
- this is manifested at an early (perceptual), relatively automatic level of processing, with attentional resources most affected
• this automatic bias is evident when the individual is required to allocate processing priorities to competing alternatives (e.g., Stroop, visual dot probe, dichotic listening)

• personal relevance, or "concern-relatedness" of the threatening material often accentuates the bias

Examples of biased processing:

• Mathews and MacLeod (1986):

  ▶ Anxious patients and matched controls shadowed a message in a dichotic listening task.

  ▶ Unattended ear played list of either threat or nonthreat words.

  ▶ Subjects were required to listen to attended ear, and also indicate when a visual probe appeared on a screen in front of them.
Subjects were not aware of identity of words in unattended channel (as measured by recall of unattended channel at random interruptions, and surprise recognition test at end).

However, anxious patients were slower to respond to the visual probe when threat words were presented compared to neutral words.

Threatening material drew attention away from visual task.

- Mogg, Mathews, and Eysenck (1992):
  
  Used the visual dot probe task to examine bias changes with successful recovery.

  - GAD patients, recovered patients, and matched controls
  - visual dot probe task
  - threat and nonthreat words
Results:

- Currently anxious patients showed a shift in visual attention to the location of threat words
  - shorter time to detect dot if it replaced threat word, longer time to detect if it replaced non-threat word in a threat/non-threat pair
- Recovered patients and controls did not show a visual attention shift toward threat words

Numerous studies done using Stroop interference to examine attentional bias for threat words.

Williams, Watt, MacLeod, and Mathews (1997) review 29 Stroop studies using clinically anxious samples. The vast majority report processing bias for threat-related material (most find specificity for type of threat).
Examples:

- Kaspi, McNally, and Amir (1995):
  - tested Vietnam veterans with and without PTSD
  - For PTSD group, found interference only for words related to PTSD concerns (e.g., "bodybag", "minefield"), and not for positive, neutral, or even general negative words.
  - Example of specificity of bias

- Ehlers, Margraf, Davies, and Roth (1988):
  - PD patients and controls
  - PD demonstrated greater interference for physical threat words (e.g., "choking", "coronary").
• Hope, Rapee, Heimberg, and Dombeck (1990):
  ‣ found specificity in interference when examining social phobics and PD patients
    - SP patients showed interference for social threat words
    - PD patients showed interference for physical threat words.

• Mattia, Heimberg and Hope (1993):
  ‣ replicated the interference finding for SP patients
  ‣ further showed that successful treatment with either CBT or phenelzine reduced this interference
    - non-responders to therapy showed no reduction in interference
Lavy, van den Hout, and Arntz (1993):

- spider phobics and controls
- prior to treatment, spider phobics showed interference for spider words.
- After a 2.5 hour delay, during which spider phobics received exposure treatment, there were no differences between the two groups.

Does disappearance of effects with successful treatment indicate that underlying bias has been eliminated?

Do recovered individuals still possess some sort of (modified) trait anxiety?

To determine this, would need to test successfully treated individuals in the presence of threat to see if Stroop performance is altered in face of threat (and thus might serve as a marker for latent vulnerability).

This work has yet to be done.
Memory biases

Compared to attentional biases, evidence for memory biases in anxiety are far less certain.

Watts (1986) found that spider phobics recalled fewer spider words in a free recall paradigm.

Mogg, Mathews, and Weinman (1987) showed no effect of threat words on recall in GAD patients.

By contrast, several studies (e.g., Becker, Rinck, and Margraf, 1994) have found explicit memory biases for threat words in PD.

(The pattern for attentional bias and memory bias is the reverse of that for depression.)
Bias in Judgement

Anxious patients (at least in the case of specific phobias) can demonstrate a covariation bias

- they overestimate the degree to which feared stimuli are correlated with aversive outcome.

Tomarken, Cook, and Mineka (1989)

- presented phobic subjects with pictures of spiders and snakes as well as neutral pictures.
  - Shocks accompanied both threat and neutral pictures 33% of the time.
- Phobic subjects overestimated pairing of threat pictures and shock (50%).
- They also rated shock as more painful when paired with threat as opposed to neutral pictures.
The Nosological Status of Obsessional-Compulsive Disorder

Is OCD an "anxiety" disorder?

In almost all psychopathologies labeled "anxiety disorders" in the DSM-IV, the phenomenological experience of anxiety is a consistent feature.

By contrast, it is often the case that individuals with OCD report feelings of "irritability", "tension", or "dissatisfaction" rather than anxiety per se.
Furthermore, there are differences between OCD and the other anxiety disorders on a variety of factors

- biochemical and neurophysiological correlates,
- comorbidity patterns
- personality correlates
- apparent links between OCD and other, non-anxiety disorders such as trichotillomania (compulsive hair-pulling) and tic-related disorders (such as Tourette's Disorder).

These differences have caused some researchers to question whether OCD is properly classified as an "anxiety disorder".

The World Health Organization's ICD-10 places it outside the other anxiety disorders.

Some have proposed a reclassification of OCD and other disorders (e.g., trichotillomania) as a broad class of "obsessive compulsive spectrum disorders".
If OCD differs from other disorders on these other factors, then such differences may also be evident in the cognitive domain.

Summerfeldt and Endler (1998):

- Review the research examining cognitive biases in OCD using a variety of methodologies (e.g., Stroop, visual dot probe, dichotic listening).
• They found that these studies:
  ▸ often have results that are anomalous, ambiguous, or fail to show the expected bias
  ▸ may demonstrate the expected bias, but suffer from severe methodological flaws that limit their conclusions
  ▸ in cases where bias is observed, it only appears for the subgroup of OCD subjects with contamination concerns

Their conclusion:

• To date, the evidence for specific processing biases in OCD is weak, far more equivocal than that for other anxiety disorders.

• This fact suggests that OCD may indeed differ from the other anxiety disorders.
Furthermore, Summerfeldt and Endler (1998) suggest that the fact that, under the best circumstances, bias is only demonstrated for contamination concerns may be significant.

In keeping with some recent discussion of clinical observations, it may be that OCD is not a unitary, homogenous disorder.

**Contamination concerns** seem to fit fairly well as a typical anxiety disorder

- primacy of high risk assessment
- presence of identifiable feared stimuli
- harm avoidant behaviours

By contrast, other forms of OCD, such as checking, hoarding, and symmetry subtypes, do not share these features, and may belong to a different category of disorder.
Further evidence for this view can be found in research examining anomalies in the form of obsessional thinking, as opposed to the content of obsessional cognition (as in the case of biases).

Research looking at general dysfunctions in cognition in OCD have found a number of anomalies specific to non-contamination symptom profiles.

**Recall for actions**

- Sher, Frost, Kushner, and Crews (1989)
  - found that checkers had a poor recall for actions that they had performed in the study session
  - their recognition memory for actions was unimpaired, as was their recall and recognition for words presented in the study.
Reality monitoring

- Reality monitoring: ability to distinguish between events that actually occurred and events that had been imagined.

- In a number of studies involving non-clinical samples of individuals who score high on obsessional questionnaires, Sher and colleagues found that checkers had poorer reality monitoring compared to cleaners:

Task:

- presented with pairs of antonyms, some where the second word was printed in full
  - e.g., HOT - COLD

- some where the second word had to be generated by the subject using an initial letter
  - e.g. HOT - C____
Results

• Compared to cleaners, checkers were poorer at discriminating which words they had generated and which they had read

• showed normal performance on recognizing which words had been presented

Impaired ability to distinguish between events that actually occurred and events that had been imagined (reality monitoring).

Other research suggests that individuals with non-contamination subtypes of OCD also show:

• impaired inductive reasoning

• reduced confidence in the accuracy of memories

• impaired concept formation
These findings (along with unpublished data by Summerfeldt looking at this specific issue) suggest:

- the non-contamination subtypes of OCD (e.g., checking, hoarding, symmetry-obsessions) may form a different type of disorder
  - unrelated to anxiety
  - possibly more related to other compulsive behaviour disorders such as trichotillomania and tic disorders